

**WEST**

Generate Collection

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L1: Entry 16 of 27

File: JPAB

Oct 8, 1993

PUB-NO: JP405257348A  
DOCUMENT-IDENTIFIER: JP 05257348 A  
TITLE: ELECTROSTATIC RECORDING HEAD

PUBN-DATE: October 8, 1993

## INVENTOR-INFORMATION:

NAME

COUNTRY

SASAKI, TSUTOMU

ITAYA, MASAHIKO

NAKAKOSHI, HIROYUKI

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

NIPPON STEEL CORP

APPL-NO: JP04089412

APPL-DATE: March 13, 1992

US-CL-CURRENT: 399/170

INT-CL (IPC): G03G 15/00; B41J 2/415

## ABSTRACT:

PURPOSE: To improve the efficiency of utilizing the ion current by a corona discharge of an image forming device and more particularly the electrostatic recording head of an electrostatic latent image forming system by ions.

CONSTITUTION: A pin electrode array 15 is used for an ion generating source and the direction of the discharge of the pin electrode array 15 is disposed in nearly the same direction as the direction 22 where compressed air is discharged. The ion current is generated by the corona discharge and the ions are discharged from an ion discharge path 14 by the assistance of the compressed air and the electrostatic latent image is formed on a recording medium 21. The flow rate of the ions passing the ion discharge path 14 is increased and the high-speed image formation is enabled.

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L1: Entry 17 of 27

File: JPAB

Oct 5, 1993

PUB-NO: JP405254174A

DOCUMENT-IDENTIFIER: JP 05254174 A

TITLE: ELECTROSTATIC RECORDING HEAD

PUBN-DATE: October 5, 1993

## INVENTOR-INFORMATION:

NAME

COUNTRY

SASAKI, TSUTOMU

ITAYA, MASAHIKO

NAKAKOSHI, HIROYUKI

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

NIPPON STEEL CORP

APPL-NO: JP04089411

APPL-DATE: March 13, 1992

US-CL-CURRENT: 347/128; 399/111

INT-CL (IPC): B41J 2/415; G03G 15/00

## ABSTRACT:

PURPOSE: To improve the durability of an ion generating source for electric discharge in an electrostatic recording head designed to form an electrostatic latent image using an ion.

CONSTITUTION: A pin electrode array 13 consisting of pin electrodes arranged at comparatively closely spaced pins instead of a prior art discharge wire is used as an ion generating source in an ion flow-type electrostatic recording head. The pin electrode array 13 is arranged 3 to 10mm away from an counter electrode, and a corona discharge occurs due to the application of a voltage between both electrodes. Consequently, an ion stream generates in a compressed air supplied to the head. An electrostatic latent image is formed on a recording sheet or a drum by controlling the ion stream.

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L1: Entry 18 of 27

File: JPAB

Jan 26, 1989

PUB-NO: JP401024380A

DOCUMENT-IDENTIFIER: JP 01024380 A

TITLE: HIGHLY REPETITIVE HIGH-VOLTAGE SWITCHING METHOD

PUBN-DATE: January 26, 1989

## INVENTOR-INFORMATION:

NAME

COUNTRY

JITSUNO, TAKAHISA

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

N D C KK

APPL-NO: JP62179774

APPL-DATE: July 17, 1987

US-CL-CURRENT: 313/591

INT-CL (IPC): H01T 2/02; H01J 17/50; H01S 3/097

## ABSTRACT:

PURPOSE: To perform switching of high voltage at a high speed by shortcircuiting two electrodes through discharging, decreasing rapidly the ions generated by discharging through utilization of the pressure relieving phenomenon of insulating gas, and again insulating the two electrodes electrically from each other.

CONSTITUTION: At a distance  $d$  a pin electrode 1 and a mating electrode 2 are faced to each other in a sealed space 4 filled with an insulating gas at a pressure over  $1\text{kg/cm}^2$ . A highly repetitive trigger pulse voltage with a short time of rising is impressed to a trigger electrode 3, and thereby insulation destruction is generated between the tip of trigger electrode 3 and the electrode end 10 of pin electrode 1 so as to provide partial discharging. The main discharge is induced between the electrode end 10 of the pin electrode 1 and the electrode end 10 of mating electrode 2 by means of the generated ions supplying effect and electrons irradiating effect to cause shortcircuiting of the two electrodes-i.e., switching is made. The ions generating by this discharge are decreased rapidly by the pressure relieving phenomenon to provide restitution to the initial state. Thus high speed switching is made practicable.

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L1: Entry 19 of 27

File: JPAB

Jan 22, 1985

PUB-NO: JP360012160A  
DOCUMENT-IDENTIFIER: JP 60012160 A  
TITLE: ELECTROSTATIC PAINTING APPARATUS

PUBN-DATE: January 22, 1985

## INVENTOR-INFORMATION:

NAME

COUNTRY

HATSUMI, TAKEO

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

KK R H SERVICE

APPL-NO: JP58120599

APPL-DATE: July 1, 1983

INT-CL (IPC): B05B 5/08; B05D 1/04

## ABSTRACT:

PURPOSE: To safely and uniformly apply electrostatic painting to an article to be painted, in applying electrostatic painting to the surface of an electrically and conductor such as a resin, by holding the surface of the article to high potential opposite to that of a painting machine while removing electricity after painting.

CONSTITUTION: A hanger 2 is attached to a conveyor 1 in an insulated state and a support part 2B having corona pin electrodes 15 attached thereto and supporting an article 3 to be painted is formed to one end of said hanger 2 while a collector attaching part 2C having a collector plate 13 is formed to the other end thereof. The conveyor 1 is moved to a direction shown by the arrow while high positive voltage is applied to the current supply copper plate 10B provided to the surface of a current supply apparatus 10 by a power source 12 and a negatively charged paint is applied to the surface 3A of the article 3 to be painted from a painting machine 4 to which high negative voltage is applied. The collector plate 13 of the hanger 2 is contacted with the current supply plate 10B of the current supply apparatus 10 to positively charge the hanger 2 and corona discharge is generated from the corona pin electrodes 15 to charge the surface 3A of the article 3 to be painted to positive potential while the negatively charged paint is uniformly painted.

The collector plate 13 of the hanger 2 separated from the current supply apparatus 10 is removed by oppositely charged ions from an ion generating apparatus to prevent danger caused by high voltage charging.

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L1: Entry 20 of 27

File: JPAB

Jan 22, 1985

PUB-NO: JP360012159A

DOCUMENT-IDENTIFIER: JP 60012159 A

TITLE: ELECTROSTATIC PAINTING APPARATUS

PUBN-DATE: January 22, 1985

## INVENTOR-INFORMATION:

NAME

COUNTRY

HATSUMI, TAKEO

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

KK R H SERVICE

APPL-NO: JP58120598

APPL-DATE: July 1, 1983

US-CL-CURRENT: 219/121.64

INT-CL (IPC): B05B 5/08; B05D 1/04

## ABSTRACT:

PURPOSE: To safely and uniformly apply electrostatic painting to an article to be painted in applying electrostatic painting to the article comprising an electrically bad conductor such as a synthetic resin, by charging the surface of the article to be painted to potential opposite to that of a painting machine while removing electricity after painting.

CONSTITUTION: The support part 2B of an article 3 to be painted having corona pin electrodes 15 is provided to one end of the hanger 2 attached to a conveyor 1 and a collector attaching part 2C having needle like collectors 13 is provided to the other end thereof. A paint is sprayed to the surface 3A of the article 3 to be painted from a painting machine 4 to which high negative voltage is applied while the conveyor 1 is moved to a direction shown by the arrow to perform painting. In this case, a corona pin electrode 10, which are equipped with a large number of electrode pins 10B and to which high positive voltage is applied is arranged in opposed relation to the collector needles 13A provided to the other end part 2C of the hanger 2 to perform corona discharge. As a result, the article 3 to be painted is charged to positive potential and fine paint particles charged to negative potential are uniformly applied to the surface 3A thereof. The charge of the hanger 2 is removed by ions from an ion generator 17 to prevent

danger caused by voltage charging.

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L1: Entry 21 of 27

File: EPAB

Mar 25, 1994

PUB-NO: FR002696050A1

DOCUMENT-IDENTIFIER: FR 2696050 A1

TITLE: Negative ion generator - uses insulating plate with metallised surface containing electrodes and air passage holes

PUBN-DATE: March 25, 1994

## INVENTOR-INFORMATION:

NAME

COUNTRY

BRUNET, GEORGES A

ALBERT, POUGEOL

FLEURY, FABRICE R

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

ATMOSTAT IONISATION

FR

APPL-NO: FR09211280

APPL-DATE: September 22, 1992

PRIORITY-DATA: FR09211280A (September 22, 1992)

US-CL-CURRENT: 250/423R

INT-CL (IPC): H01T 23/00; A61N 1/44

EUR-CL (EPC): A61N001/44; H01T023/00

## ABSTRACT:

The ioniser includes a battery of electrodes in the form of pins (1) fixed on an insulating plate (2) having a metallic coating on both its faces. The metallic coating (2a) on the front face is connected to earth by a conductor (10). In this face are openings (3) centred on the electrode pins (1). In these openings (3) are holes (11) which permit the passage of air (S) flow driving the ions created. The electrode pins are electrically connected by conducting paths created in the metallic coating of the rear face of the plate (2) to a conductor (8) which is connected to the negative terminal of a source THT (9). ADVANTAGE - Simplified structure of negative ion generators.



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L1: Entry 22 of 27

File: EPAB

Dec 5, 1990

PUB-NO: EP000400723A1  
DOCUMENT-IDENTIFIER: EP 400723 A1  
TITLE: Corona device.

PUBN-DATE: December 5, 1990

## INVENTOR-INFORMATION:

NAME

STOOT, ANDREAS CORNELIS

COUNTRY

NL

## ASSIGNEE-INFORMATION:

NAME

OCE NEDERLAND BV

COUNTRY

NL

APPL-NO: EP90201306

APPL-DATE: May 23, 1990

PRIORITY-DATA: NL08901371A (May 31, 1989)

US-CL-CURRENT: 399/170

INT-CL (IPC): G03G 15/02; H01T 19/04

EUR-CL (EPC): G03G015/02; H01T019/04

## ABSTRACT:

CHG DATE=19990617 STATUS=O> In a corona device in which the ion-generating element comprises pin electrodes (1) which are secured to be insulated with respect to a housing (2) open on at least one side, profiled auxiliary electrodes (4) are disposed in the vicinity of the pin electrodes (1) in a plane perpendicular to the possibly imaginarily lengthened pin electrodes (1), the connecting lines between the tops of said auxiliary electrodes (4) passing substantially through the tops of the pin electrodes (1) or the pin electrodes (1) imaginarily lengthened in the direction of the open side.

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L1: Entry 23 of 27

File: DWPI

Oct 25, 2001

DERWENT-ACC-NO: 2002-194786

DERWENT-WEEK: 200225

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TITLE: Hand-holdable electro-kinetic electrostatic ionic air refreshener-conditioner for a pet shelter, has two electrode arrays, first in form of pins, and second defining a washer-like shape

INVENTOR: LAU, S F; TAYLOR, C E

PATENT-ASSIGNEE:

ASSIGNEE

CODE

SHARPER IMAGE CORP

SHARN

PRIORITY-DATA: 1999US-0249375 (February 12, 1999), 2001US-0897267 (July 2, 2001)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20010032544 A1	October 25, 2001		024	B03C003/68

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US20010032544A1	February 12, 1999	1999US-0249375	Cont of
US20010032544A1	July 2, 2001	2001US-0897267	

INT-CL (IPC): B03 C 3/68

ABSTRACTED-PUB-NO: US20010032544A

BASIC-ABSTRACT:

NOVELTY - The air refreshener-conditioner includes a self-contained ion generator that provides electro-kinetically moved air with ions and safe amounts of ozone. The ion generator includes a high voltage pulse generator whose output pulses are coupled between first and second electrode arrays. Preferably the first array comprises one or more pin-like electrodes and the second array comprises one or more washer-like electrodes. The preferred ratio between effective area of an electrode in the second array compared the area of an electrode in the first array exceeds 15:1, and is preferably 20:1.

DETAILED DESCRIPTION - An electric field produced by the high voltage pulses between the arrays produces an electrostatic flow of ionized air containing safe amounts of ozone. Optionally, a sensor detectors odor adjacent the refreshener-conditioner causes the ion generator to be activated when sensed odor exceeds a predetermined threshold. Odor-activation of the ion generator can be open or closed loop. A bias electrode, electrically coupled to the second array electrodes, affects net polarity of ions generated. The outflow of ionized air and ozone is thus conditioned.

An INDEPENDENT CLAIM is given for a method of electro-kinetically providing an animal container with a flow of cleaned air containing ions.

USE - In an animal kennel, animal house, or animal litter box, (All claimed), to reduce odor and undesirable parasites such as germs, bacteria and fleas.

ADVANTAGE - Does not require expensive fabricating techniques to make the electrodes. A third array of electrodes is not necessary, and may be portable and battery operated.

DESCRIPTION OF DRAWING(S) - The figure shows a perspective view of the electrode assembly.

particles 60

electrode assembly 220

first/second electrode array 230,240

CHOSEN-DRAWING: Dwg.4A/4

TITLE-TERMS: HAND ELECTRO KINETIC ELECTROSTATIC ION AIR REFRESH  
CONDITION PET SHELTER TWO ELECTRODE ARRAY FIRST FORM PIN SECOND  
DEFINE WASHER SHAPE

DERWENT-CLASS: P41 X25 X27

EPI-CODES: X25-H02A; X27-H;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N2002-147926

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L1: Entry 24 of 27

File: DWPI

Nov 2, 1999

DERWENT-ACC-NO: 1999-619239

DERWENT-WEEK: 200282

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TITLE: Self-contained ion generator of grooming brush

INVENTOR: LAU, S F; TAYLOR, C E

PATENT-ASSIGNEE:

ASSIGNEE

CODE

SHARPER IMAGE CORP

SHARN

PRIORITY-DATA: 1998US-0163024 (September 29, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 5975090 A	November 2, 1999		022	A45D019/16

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 5975090A	September 29, 1998	1998US-0163024	

INT-CL (IPC): A45 D 19/16

RELATED-ACC-NO: 2001-031224;2001-181822 ;2002-759036

ABSTRACTED-PUB-NO: US 5975090A

BASIC-ABSTRACT:

NOVELTY - A high voltage generator (170) outputs signal whose duty cycle is 10-100%. Electrode arrays (230,240) are coupled to output ports of high voltage generator. The electrode arrays respectively consists of tapered pin-shaped and ring-shaped electrodes. The ion generator produces ionized air and ozone that flow electrostatically from vents in the brush, towards object being brushed.

DETAILED DESCRIPTION - The electrodes in the array (230) are made of electrically conductive materials having ends defining several projecting conductive fibers. The electrodes in the array (240) are disposed co-axially with the projecting end of the electrodes in array (230). The electrodes are fabricated from stainless steel or

brass.

USE - For use by humans, pets.

ADVANTAGE - Gives more conditioned appearance to hair. The ozone emissions can kill many types of germs and bacteria that may be present on the hair and scalp, and deodorize the hair and scalp. The air stream emitted by the brush has reduced dust content.

DESCRIPTION OF DRAWING(S) - The figure shows the perspective block diagram of the electrode assembly.

High voltage generator 170

Electrode arrays 230,240

CHOSEN-DRAWING: Dwg.4A/5

TITLE-TERMS: SELF CONTAIN ION GENERATOR GROOMING BRUSH

DERWENT-CLASS: P24 X27

EPI-CODES: X27-A02A1; X27-H;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N1999-456589

**WEST**

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L1: Entry 25 of 27

File: DWPI

Nov 4, 1992

DERWENT-ACC-NO: 1992-418711

DERWENT-WEEK: 199251

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TITLE: Electrification preventative ion generator - has positive and negative voltage feeders connected respectively to two terminal pins of case to excite radiating electrodes NoAbstract

PATENT-ASSIGNEE:

ASSIGNEE

CODE

KITAGAWA KOGYO KK

KITAN

PRIORITY-DATA: 1991JP-0077894 (April 10, 1991)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 04312796 A	November 4, 1992		005	H05F003/04

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP 04312796A	April 10, 1991	1991JP-0077894	

INT-CL (IPC): H01T 23/00; H05F 3/04

ABSTRACTED-PUB-NO: JP 04312796A

EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/8

TITLE-TERMS: ELECTRIC PREVENT ION GENERATOR POSITIVE NEGATIVE VOLTAGE FEED CONNECT RESPECTIVE TWO TERMINAL PIN CASE EXCITATION RADIATE ELECTRODE NOABSTRACT

DERWENT-CLASS: X12 X25

EPI-CODES: X12-F03; X25-S;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N1992-319272

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L1: Entry 26 of 27

File: DWPI

Dec 5, 1990

DERWENT-ACC-NO: 1990-363257

DERWENT-WEEK: 199049

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TITLE: Corona device for electrophotography device - has auxiliary electrodes in plane perpendicular to imaginary lengthened pin electrodes

INVENTOR: STOOT, A C

PATENT-ASSIGNEE:

ASSIGNEE

CODE

OCE NEDERLAND BV

CHEZ

OCE VAN DER GRINTEN NV

CHEZ

PRIORITY-DATA: 1989NL-0001371 (May 31, 1989)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 400723 A	December 5, 1990		000	
DE 69002542 E	September 9, 1993		000	G03G015/02
EP 400723 B1	August 4, 1993	E	006	G03G015/02
JP 03012670 A	January 21, 1991		000	
NL 8901371 A	December 17, 1990		000	
US 5101107 A	March 31, 1992		005	

DESIGNATED-STATES: DE FR GB NL DE FR GB NL

CITED-DOCUMENTS: EP 274895; US 3303401 ; US 3744898

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 400723A	May 23, 1990	1990EP-0201306	
DE 69002542E	May 23, 1990	1990DE-0602542	
DE 69002542E	May 23, 1990	1990EP-0201306	
DE 69002542E		EP 400723	Based on
EP 400723B1	May 23, 1990	1990EP-0201306	
US 5101107A	May 25, 1990	1990US-0529205	

INT-CL (IPC): G03G 15/02; H01T 19/04

ABSTRACTED-PUB-NO: EP 400723A

BASIC-ABSTRACT:

The corona device has pin electrodes (1) connected to a voltage source, they are electrically insulated from the housing (2), the electrode's free ends are directed to an opening in the housing. Auxiliary electrodes on both sides of the pin electrodes are in a plane perpendicular to imaginary lengthened pin electrodes.

The connecting line between the tops of the auxiliary electrodes passes through the tops of the pin electrodes or imaginary lengthened pin electrodes in the direction of the housing opening.

USE/ADVANTAGE - Electrophotography. High charging speed.

ABSTRACTED-PUB-NO:

EP 400723B

EQUIVALENT-ABSTRACTS:

A corona device comprising:

- a housing (2) open on at least one side,
- an array of pin electrodes (1) adapted to be separately or jointly connected to a voltage source and disposed in the housing (2) so as to be electrically insulated, one free end of the pin electrodes (1) being directed to the open side of the housing (2), and
- auxiliary electrodes (4) on both sides of the array of pin electrodes (1),

characterised in that

- the auxiliary electrodes (4) are disposed in a plane perpendicular to the pin electrodes (1),
- the auxiliary electrodes (4) are profiled on the side directed towards the pin electrodes (1), and
- the auxiliary electrodes are so disposed that the connecting line between each top of the auxiliary electrode (4) on one side of the array of pin electrodes (1) and the nearest top of the auxiliary electrode (4) on the other side of the array of pin electrodes passes substantially through a top of the array of the pin electrodes (1) or through an imaginary extension thereof in the direction of the open side.

US 5101107A

A corona device in which the ion-generating element is an array of pin electrodes which are secured to and insulated from a housing open on at least one side. Profiled auxiliary electrodes are disposed in the vicinity of the pin electrodes in a plane perpendicular to the possibly imaginarily lengthened pin electrodes. The imaginary connecting lines between the tops of the auxiliary electrodes pass through the tops of the pin electrodes or



the pin electrodes imaginarily lengthened in the direction of the open side. ADVANTAGE - The material to be charged can be given a charge in which the uniformity is greatly improved even at high charging speeds.

()

CHOSEN-DRAWING: Dwg.1/6

TITLE-TERMS: CORONA DEVICE ELECTROPHOTOGRAPHIC DEVICE AUXILIARY  
ELECTRODE PLANE PERPENDICULAR IMAGINARY LENGTH PIN ELECTRODE

DERWENT-CLASS: P84 S06

EPI-CODES: S06-A02;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N1990-277179

**WEST****End of Result Set**

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L1: Entry 27 of 27

File: DWPI

Apr 22, 1981

DERWENT-ACC-NO: 1981-D9473D

DERWENT-WEEK: 198118

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TITLE: Ion-generating element in corona device - consists of four row of electrode-pins projecting from insulating material

INVENTOR: HABETS, A H M; KRIJEN, H C M

PATENT-ASSIGNEE:

ASSIGNEE

CODE

OCE NEDERLAND BV

CHEZ

PRIORITY-DATA: 1979NL-0007492 (October 10, 1979)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 27285 A	April 22, 1981	E	000	
DE 3065301 G	November 17, 1983		000	
EP 27285 B	October 12, 1983	E	000	
NL 7907492 A	April 14, 1981		000	
US 4344104 A	August 10, 1982		000	

DESIGNATED-STATES: DE FR GB NL DE FR GB NL

CITED-DOCUMENTS: CH 414349; CH 578808 ; DE 2064545 ; DE 2146539

INT-CL (IPC): G03G 15/02; H01T 19/04; H05F 3/06

ABSTRACTED-PUB-NO: EP 27285A

BASIC-ABSTRACT:

The ion-generating element consists of a row of identical electrode pins (1,2,3). The pins are provided at the same mutual spacing from each other in a body (4) of insulating material.

The diameter of the electrode pins is between ten and one hundred microns and the distance between the electrode pins is between 0.3 and 2.5 millimetres. The pins project between 0.7 and 3 millimetres beyond the body of insulating material. The ratio of the length and diameter of the pins is between 10 and 300, and the ratio of the distance between the pins to the diameter of the pins is between 4

and 250.

The device provides a uniform charge on the material which is to be charged and functions over a wider range of high voltages than conventional devices.

ABSTRACTED-PUB-NO:

EP 27285B

EQUIVALENT-ABSTRACTS:

The ion-generating element consists of a row of identical electrode pins (1,2,3). The pins are provided at the same mutual spacing from each other in a body (4) of insulating material.

The diameter of the electrode pins is between ten and one hundred microns and the distance between the electrode pins is between 0.3 and 2.5 millimetres. The pins project between 0.7 and 3 millimetres beyond the body of insulating material. The ratio of the length and diameter of the pins is between 10 and 300, and the ratio of the distance between the pins to the diameter of the pins is between 4 and 250.

The device provides a uniform charge on the material which is to be charged and functions over a wider range of high voltages than conventional devices.

TITLE-TERMS: ION GENERATE ELEMENT CORONA DEVICE CONSIST FOUR ROW  
ELECTRODE PIN PROJECT INSULATE MATERIAL

DERWENT-CLASS: P84 S06

EPI-CODES: S06-A02;